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(54) **Double-type kalanchoe interspecific hybrids**
Interspezifische Doppeltyp-Kalanchoe Hybride
Hybrids interspécifiques de kalanchoe de type double

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- **BOOM B K ET AL: "Kalanchoe vadensis, species nova", SUCCULENTA, NEDERLANDS-BELGISCHE VERENIGING VAN LIEFHEBBERS VAN CACTUSSEN EN ANDERE VETPLANTEN, NETHERLANDS, vol. 43, 1 January 1964 (1964-01-01), pages 122 - 124, XP008104400, ISSN: 0039-4467**
- **VAN OORST A ET AL: "THE ORIGIN AND CHROMOSOME NUMBERS OF CULTIVARS OF KALANCHOE-BLOSSFELDIANA VON POELLN.: THEIR HISTORY ANDEVOLUTION", EUPHYTICA, KLUWER ACADEMIC PUBLISHERS, NL LNKD-DOI:10.1007/BF00039195, vol. 31, no. 3, 1 December 1982 (1982-12-01), pages 573 - 584, XP008104212, ISSN: 0014-2336, [retrieved on 20041104]**
- **KROON G.H.: "A note on the origin of Kalanchoe X vadensis Boom and Zeilinga (Crassulaceae)", EUPHYTICA, vol. 76, 1994, pages 125**

Remarks:

The file contains technical information submitted after the application was filed and not included in this specification

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Description

[0001] The present invention relates to new, distinct, and stable cultivars of double-type *Kalanchoe* interspecific hybrids that produce one or more flowers with at least 5 full or partial petals per flower. The double-type *Kalanchoe* interspecific hybrids of the present invention include *Kalanchoe blossfeldiana* x *K. laciniata*. The double-type *Kalanchoe* interspecific hybrids of the present invention also include double-type plants produced from crosses between the above-identified interspecific hybrids (e.g. (*K. blossfeldiana* x *K. laciniata*) x (*K. blossfeldiana* x *K. pubescens*)). as well as, crosses between interspecific hybrids containing *K. blossfeldiana* and interspecific hybrids not containing *K. blossfeldiana* in the genetic background (e.g. (*K. blossfeldiana* x *K. laciniata*) x (*K. grandiflora* x *K. pritzwii*)). The double-type interspecific hybrid plants produce one or more flowers having at least 35, 36, 37, 38, 39, 40, or more than 40 petals per flower. The double-type characteristic has been successfully introgressed from double-type *K. blossfeldiana* into other single-type (4 petals per flower) *Kalanchoe* species. The double-type interspecific hybrid plants can be used as either male or female parents in crosses to the parents, other selections from the same species as the parents, or selections from other *Kalanchoe* species. The double-type interspecific hybrid plants can also be selfed. The double-type flowering characteristic from *K. blossfeldiana* has been combined with many desirable traits from other *Kalanchoe* species including different flower colors, superior growth characteristics and improved plant habit. Methods for the reliable breeding of the double-type characteristic from *K. blossfeldiana*, or *Kalanchoe* interspecific hybrid plants, into diverse single-type *Kalanchoe* genetic backgrounds, as well as methods for increasing the number of petals per flower, are disclosed.

[0002] The present invention relates generally to the field of ornamental *Kalanchoe* plants. The genus of *Kalanchoe* belongs to the sedum family (*Crassulaceae*). There are more than 100 different species of *Kalanchoe* of which more than 60 are found in Madagascar. Many species are found in South Africa and a few in Asia and South America. *Kalanchoe* belongs to the succulent plant group, which are characterized by their turgid leaves. The leaves enable members of this genus to survive drought conditions. Consequently, *Kalanchoe* are useful ornamental plants because they can survive in less than optimal growing conditions.

[0003] Species of *Kalanchoe* are described in J.T. Baldwin, Amer. J. Bot. 25: 572-579 (1938). Each species of *Kalanchoe* has traits a breeder would like to incorporate into commercial cultivars. Other traits a breeder will try to avoid.

[0004] *K. blossfeldiana* is a valuable ornamental species because it can be readily grown from seed, or reproduced asexually from cuttings, and produces abundant flowers that remain fresh for several weeks. Generally, *K. blossfeldiana* plants are highly branched and under certain conditions the height of the branches may be up to 30-45 cm. *K. blossfeldiana* plants generally produce erect flowers, oblong or ovate-oblong leaves, with a corolla that is red.

[0005] The breeding of *Kalanchoe* interspecific hybrids with double-type, rose-like flowers, with at least 35 petals per flower, offers a unique flower form that can be combined with diverse *Kalanchoe* plant characteristics from different species, thereby expanding the range of phenotypic characteristics available in this popular horticultural plant.

[0006] A chromosomal characterization of *Kalanchoe blossfeldiana* and different interspecific fertile hybrids having *K. blossfeldiana* as one of the parental lines are described in A. van Voorst and J.C. Arends, Euphytica 31:573r584 (19812).

SUMMARY OF THE INVENTION

[0007] An object of the present invention is to provide a *Kalanchoe* interspecific hybrid plant according to claim 1 having one or more double-type flowers with at least 35 full or partial petals per flower.

[0008] Yet another object of the present invention is to provide a *Kalanchoe* interspecific hybrid plant in which substantially all the flowers produced by the plant are double-type with at least 35 full or partial petal per flower.

[0009] Another object of the present invention is to provide a *Kalanchoe* interspecific hybrid plant wherein a double-type flower has at least 36, 37, 38, 39, 40, or more than 40 petals per flower.

BRIEF DESCRIPTION OF THE DRAWINGS**[0010]**

FIGURE 1. A top perspective view of a typical potted flowering plant of *Kalanchoe* cultivar 'KJ 2003 0818' 19 weeks after planting of cutting.

FIGURE 2. A side perspective view of a typical potted flowering plant of *Kalanchoe* cultivar 'KJ 2003 0818' 18 weeks after planting of cutting.

FIGURE 3. Representative plant parts of *Kalanchoe* cultivar 'KJ 2003 0818': A. Inflorescence; B. Inside a flower; C. Flower bud, site; D. Flower; E. Flower bud, top; F. Petal; G. Pistil; H. Sepal; I. Mature leaf; J. Young leaf.

FIGURE 4. A top perspective view of a typical potted flowering plant of *Kalanchoe* cultivar 'KJ 2003 0727' 19 weeks after planting of cutting.

FIGURE 5. A side perspective view of a typical potted flowering plant of *Kalanchoe* cultivar 'KJ 2003 0727' 19 weeks after planting of cutting.

FIGURE 6. Representative plant parts of *Kalanchoe* cultivar 'KJ 2003 0727': A. Inflorescence; B. Inside a flower; C. Flower bud, side; D. Flower; E. Flower bud, top; F. Petal; G. Pistil; H. Sepal; I. Mature leaf; J. Young leaf.

DETAILED DESCRIPTION:

[0011] As used herein, "single", or "single-flowering", or "single-type" are each defined as the typical *Kalanchoe* plant which produces flowers having 4 petals per flower.

[0012] As used herein, "double", "double-flowering", or "double-type" are each defined as a *Kalanchoe* interspecific hybrid plant which produces one or more flowers having at least 5 full or partial petals per flower. Preferably, the double-type *Kalanchoe* interspecific hybrid plant of the instant invention has substantially all double-type flowers. The double-type flowers of the instant invention have 35, 36, 37, 38, 39, 40, or more than 40 petals per flower. A double-type *Kalanchoe* interspecific hybrid plant of the instant invention may produce flowers with a relatively uniform number of petals per flower and this characteristic is stable through asexual reproduction. Alternatively, a double-type *Kalanchoe* interspecific hybrid plant of the instant invention may produce flowers with a wide range in the number of petals per flower and this characteristic is also stable through asexual reproduction.

[0013] As used herein, the "degree of doubleness per flower" is defined as a measure of the number of extra full or partial petals per flower produced beyond the number 4 normally found on *Kalanchoe* single-type plant. The greater the degree of doubleness per flower, the greater the number of full or partial petals produced per flower.

[0014] As used herein "the degree of doubleness per plant" is defined as a measure of the number of flowers per plant, which have at least 5 petals per flower. The greater the degree of doubleness per plant, the higher is the percentage of total flowers produced by the plant which have at least 5 full or partial petals per flower.

[0015] As used herein, "interspecific hybrid" includes the progeny from the cross of two different species of *Kalanchoe*, as well as progeny resulting from subsequent backcrossing to one of the parents. This backcrossing to one of the parents may be conducted one or more times with the goal of stably combining the double-type trait with desired characteristics.

[0016] *K. blossfeldiana* is crossed with *K. laciniata* to combine advantageous characteristics into unique new cultivars.

[0017] Advantageous traits obtained from *K. laciniata* plants include: 1) intense yellow coloration of flower 2) entire, sinuate or parted leaf, 3) shining texture of leaf 4) good fixation of the leaf to the stem, 5) production of many cuttings and 6) vigorous rooting habit. Traits from *K. laciniata* that should be avoided in a breeding program include 1) long length of stem, 2) fast and unstable growth habit and 3) poor post-production longevity.

[0018] *K. blossfeldiana* x *K. laciniata* interspecific hybrids typically have leaves that are entire, sinuate or parted with erect and large flowers that are white, pink, purple, yellow, orange, and red. *K. blossfeldiana* x *K. laciniata* interspecific hybrids are highly branched, relatively compact and under certain conditions the height of the branches may be up to 30-45 cm.

[0019] (*K. blossfeldiana* x *K. laciniata*) x. (*K. blossfeldiana* x *K. pubescens*) double type interspecific hybrids typically have ovate, as well as, hastate leaves. (*K. blossfeldiana* x *K. laciniata*) x. (*K. blossfeldiana* x *K. pubescens*) interspecific hybrids are upright and have a uniform growth habit, and under certain conditions, the height of the branches may be up to 26 cm.

[0020] Double-type *Kalanchoe* interspecific hybrid cultivars are genetically stable, as evidenced by the stability of the double-type trait through both asexual propagation and sexual crosses. The data from numerous crosses with *K. blossfeldiana* indicate that the double-type trait segregates as a single dominant gene. The double-type trait can be reproducibly and predictably introgressed into diverse *Kalanchoe* species and genetic backgrounds.

[0021] *K. blossfeldiana* seeds designated 'MP African' that produce plants carrying the double-type gene or trait, and which can be used as a male or female parent in crosses with *Kalanchoe* species to produce double-type *Kalanchoe* interspecific hybrid cultivars, were deposited at the American Type Culture Collection (ATCC), P.O. Box 1549, Manassas, VA 20108, U.S.A.

[0022] As a first step in making interspecific hybrids of the instant invention, a single or double-type *Kalanchoe* plant selection is crossed with a single-type *Kalanchoe* selection from another species. Progeny are screened for fertile selections. Large numbers of progeny may have to be screened to identify fertile selections. The fertile selections may be screened for those exhibiting the double-type flower trait if one of the parents was a double-type selection. Alternatively, the single-type fertile interspecific hybrid is crossed, either as the male or female parent, with a double-type *Kalanchoe* selection. A double-type hybrid progeny plant with desirable phenotypic characteristics is propagated asexually by conventional methods to determine if the phenotypic characteristics are stable.

[0023] For example, a *K. blossfeldiana* (tetraploid) x. *K. laciniata* (diploid) interspecific hybrid is by nature triploid and thus sterile. *K. blossfeldiana* x *K. laciniata* interspecific hybrid progeny plants were screened and 'Yellow African', described in U.S. Plant Patent No. 12,299, was identified. This fertile *K. blossfeldiana* x *K. laciniata* interspecific hybrid has been used to breed a series of interspecific hybrid cultivars.

[0024] Recurrent selection is used to increase the number of petals per flower found in the *Kalanchoe* interspecific hybrid plants of the instant invention. A double-type *Kalanchoe* interspecific hybrid plant is selfed, or crossed to another double-type *Kalanchoe* plant; and the progeny screened for plants with double-type flowers with an increased number of petals per flower compared to the double-type parents.

1. General Breeding Methods

[0025] The *Kalanchoe* plants of the instant invention were crossed as follows. When the pistil is fully developed and the anthers have not opened, the pistil is to some extent uncovered. During this time the stigma is susceptible to pollination. Pollen is harvested from the male using a pencil or small brush and transferred to the stigma. Once pollination is complete, the seeds develop within the ovary and the pistils are harvested when ripe. The seeds are dried before sowing in peat-based soil mix.

[0026] Breeding with double-type *K. blossfeldiana* requires careful uncovering of the pistil. It is very easy to wound the ovary and thereby hinder germination and development of seeds. In addition, if the female parent is water-stressed during pollination and subsequent seed development, the number of seeds obtained appear to increase.

2. Plant Growth Conditions

[0027] The *Kalanchoe* plants described herein were grown in a greenhouse at 64.4 °F during the day and 68°F during the night. The plants were produced in pots with a diameter of 10.5 cm or 13 cm. Cuttings were grown under long-day conditions (16 hours light, 8 hours night) during the first 3-8 weeks following planting, depending on cultivar and pot size. Between 4-9 weeks after planting, the plants were transferred to , short-day conditions (10 hour light and 14 hour dark). The flowering is induced by short-day conditions. Between 13-19 weeks after planting, depending on cultivar, pot size, and time of year, the plants were mature with flowers that were opening or about to open.

[0028] The plants were grown under natural light conditions supplemented with 70 $\mu\text{mol}/\text{m}^2/\text{s}$ SON-T light when the natural light was less than 100 $\mu\text{mol}/\text{m}^2/\text{s}$. Plants were grown in a peat based soil mix and were watered with a solution containing 200 parts per million (ppm) nitrogen, 200 ppm potassium, 40 ppm phosphorous, 200 ppm calcium, 40 ppm magnesium, 60 ppm sulphate, 1 ppm iron, 0.6 ppm manganese, 0.1 ppm copper, 0.1 ppm zinc, 0.3 ppm borium, 0.03 ppm molybdenum.

[0029] The following examples are set forth as representative of the specific and preferred embodiments of the present invention. These examples are not to be construed as limiting the scope of the invention in any manner.

EXAMPLE 1

[0030] The data from numerous crosses with *K. blossfeldiana* indicate that the double-type trait segregates as a single dominant gene. A total of 9,787. progeny from crosses of *K. blossfeldiana* double-type x *K. blossfeldiana* single-type have been analyzed. Among these 9,787 progeny, 2,956 exhibited the double-type trait. Seeds carrying the double-type trait germinate at a lower frequency than seeds carrying the single-type trait. This lower germination frequency has probably impacted the segregation pattern which is not the 1:1 ratio expected for a trait controlled by a single dominant gene. Regardless of what the genetic basis for control of the double-type trait in *Kalanchoe* might be, these data demonstrate the double-type trait can be reproducibly and predictably introgressed into diverse *Kalanchoe* genetic backgrounds.

EXAMPLE 2

CULTIVAR 'KJ 2003 0818'

[0031] The new *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 2003 0818' was produced using 1) a *K. blossfeldiana* double-type selection designated 'Leonardo', as the female parent, and is described in pending United States Plant Patent Number PP13,365, and 2) a proprietary single-type selection of *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 1998-469', unpatented. The new *Kalanchoe* cultivar 'KJ 2003 0818' was discovered and selected as a flowering plant within the progeny of the stated cross in a controlled environment in Hinnerup, Denmark.

[0032] Asexual reproduction of the new cultivar by vegetative terminal cuttings was first performed in April, 2004, in Hinnerup, Denmark, and has demonstrated that the combination of characteristics as herein disclosed for the new cultivar are firmly fixed and retained through successive generations of asexual reproduction. The new cultivar reproduces true-to-type through asexual reproduction.

[0033] The following traits have been repeatedly observed and are determined to be unique characteristics of the new *Kalanchoe* cultivar 'KJ 2003 0818' which in combination distinguish this *Kalanchoe* as a new and distinct cultivar:

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1. a large number of petals per flower resulting in a double-type or multi-petalled trait;
2. the large size of petals resulting in a large flower;
3. a unique soft pink color with a touch of yellow; and
4. a large number of flowers per plant.

[0034] The new *Kalanchoe* cultivar 'KJ 2003 0818' has not been observed under all possible environmental conditions. The phenotype of the new cultivar may vary significantly with variations in environment such as temperature, light intensity, and day length without any change in the genotype of the plant. The following Observations, measurements and values describe the new *Kalanchoe* cultivar 'KJ 2003 01818' as grown in Hinnerup, Denmark under conditions which closely approximate those generally used in commercial practice.

[0035] Plants of 'KJ 2003 0818' differ from plants of the parental cultivars in the following characteristics:

Trait	New Cultivar 'KJ 2003 0818'	Female Parent 'Leonardo' (patented, PP13,365)	Male Parent 'KJ 1998-469' (unpatented)
Height of cultivar	Is about 25 cm	Is about 30 cm	Is about 33 cm
Flower Type	Double-type	Double-type	Single-type
Flower Diameter	20-24 mm	15-17 mm	20-25 mm
Flower number	250-350	250-300	350-400
Number of Corolla Lobes	Up to 43 full or partial petals	Between 18-25 full or partial petals	4 petals
Corolla Coloration	Red-purple. Summer coloration: Center of the flower corolla is 65 A. Border of the corolla is 65 D. Fine thin longitudinal line from apex to base (1	Red-purple. RHS N74 A with one very thin longitudinal line from apex to base (1 mm) RHS 71 B.	Red-purple. RHS 68 B with many fine longitudinal lines RHS 62 D. The border of the corolla is 62 D.

Trait	New Cultivar 'KJ 2003 0818'	Female Parent 'Leonardo' (patented, PP13,365)	Male-Parent 'KJ 1998-469' (unpatented)
	mm) with 64 D. Winter coloration: Center of the corolla is 62A. The border of the corolla is 65 C. Fine thin longitudinal line from apex to base (1 mm) with 64 C.		
Shape of petal	Broadly elliptic petals. The width of the petal is 6 mm and the length is 9 mm. The shape of the apex is cuspidate with entire margin.	Elliptic petals. The width of the petal is 4 mm and the length is 7 mm. The shape of the apex is cuspidate with entire margin.	Broadly elliptic petals. The width of the petal is 8 mm and the length is 12 mm. The shape of the apex is cuspidate with entire margin.
Leaf	Ovate leaves with medium petiole. The apex is obtuse and the base is obtuse.	Ovate leaves with medium petiole. The apex is obtuse and the base is rounded.	Elliptic leaves with long petiole. The apex is rounded and the base is obtuse.
Leaf texture	The texture of the leaf is glabrous and shinning.	The texture of the leaf is glabrous and shinning.	The texture of the leaf is glabrous and shinning.

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[0036] Of the many commercial cultivars known to the present Inventors, the most similar in comparison to 'KJ 2003 0918' is *Kalanchoe* cultivar 'KJ 2002 0504'. Comparing these two cultivars, besides the petal color being a different pink shade, the main distinction is that plants of 'KJ 2003 0818' have large sized petals resulting in large flowers which have a very harmonic symmetry.

[0037] In the following description, color references are made to the Royal Horticultural Society Colour Chart (RHS), published 2001, except where general colors of ordinary significance are used. Color values were taken under daylight conditions at approximately 12:00 p.m. in a greenhouse in Hinnerup, Denmark. The age of the plant described is 19 weeks (from the time the cutting was planted in growth medium to when the picture was taken).

PARENTAGE:

[0038]

Male or pollen parent: *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 1998 469'.

Female or seed parent: *K. blossfeldiana* cultivar 'Leonardo' (disclosed in United States Plant Patent Number PP13,365).

CLASSIFICATION:

[0039]

Botanical: *K. blossfeldiana* x *K. laciniata* interspecific hybrid cultivar 'KJ 2003 0818'

PROPAGATION: Vegetative terminal cuttings.

Rooting Habit: The cultivar has numerous, branched, fine and fibrous roots.

Time to initiate roots: It takes between 1 and 2 weeks to initiate roots.

Time to produce a rooted cutting: It will take 3 weeks to produce a well rooted cutting. In winter time, it can take on week more.

[0040] PLANT: If the plants are grown according to the description above, it will perform as described below. Variation from this description should be expected over the course of the year, and if the physical growing conditions varies from the description.

[0041] Growth habit: This cultivar is upright and uniform. The flowers are formed above the top of the leaf canopy, but the flowers will also appear between the leaves. The flowers are assembled in numerous compound inflorescences. 'KJ 2003 0818' is freely flowering with numerous compound cymes.

[0042] Growth rate: Ready for sale after 18 weeks.

[0043] Branching habit and description: Freely branching; typically 8 to 10 lateral branches develop per plant.

[0044] Height at flowering: The height of the cultivar is about 25 cm from the bottom of the pot to the top of the plant, depending on the growth conditions.

[0045] Spread/Diameter at flowering: The diameter of the cultivar at flowering is from leaf tip to leaf tip about 25 cm.

FLOWER DESCRIPTION:

[0046] Flower type and habit: The flower is a double-type with up to 43 petals per flower. The average number of petals per flower is 35.

[0047] Natural flowering season: The flowering season is year round, when grown according to description above. When planting outside the flowering season will be in the summer (April to October), depending on focal climatic conditions.

[0048] Time to flower: The time from start of short day treatment to 1 st flower is about 74 days, approximately 1 week longer in winter time.

[0049] Flowering stem length: The length of the flowering stem is ranging from 15 to 18 cm depending on the growth conditions.

[0050] Post production longevity: 'KJ 2003 0818' maintain good leaf and flower substance for at least 6 weeks under interior environmental conditions.

[0051] Winter Hardiness/weather tolerance: 'KJ 2003 0818' withstands wind, rain and direct sunlight, and can cope with temperatures between 40 and 95 degrees F.

[0052] Fragrance: 'KJ 2003 0818' has no fragrance.

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[0053] Flower size: The diameter of the flower range from 20 to 24 mm.

[0054] Overall shape: The shape is rose-like shape, defined by at least 5 petals per flower.

[0055] Quantity: 'KJ 2003 0818' produces a large number of flower ranging from 250 to 350 flowers per plant.

5 Petal:

[0056]

Quantity: Typically 30-35 petals fused at the base.

10 Shape: The shape of petal is broadly elliptic.

Length: The length is about 9 mm.

Width: The width is about 6 mm.

Apex: The shape of the apex is cuspidate.

Margin: The shape of the margin can be described as entire.

15 Texture: The texture of the petals is soft, smooth and matte.

Color (when opening & fully opened): The coloration of the upper surface of 'KJ 2003 0818' changes over the year. During summertime the colors are more intense, whereas the winter colors are more dusty.

Summer time:

20 [0057] Upper surface: The center of the upper surface of the petal has an intense warm red-purple color RHS 65 A. The border of the corolla has a bright red-purple color, RHS 65 D. A fine thin longitudinal line from apex to base (wide is 1 mm) with a darker red-purple color, RHS 64 D.

25 [0058] Lower surface: The lower surface of the petal is bright red-purple RHS 62 D, with a touch of a darker red-purple, RHS 62 B.

Winter time:

30 [0059] Upper surface: The center of the upper surface of the petal has a dusty warm red-purple color, RHS 62 A. The border of the petal is 65 C. Fine thin longitudinal line from apex to base (1 mm) with a darker red-purple color, RHS 64 C.

[0060] Lower surface: The lower surface of the petals is bright red-purple RHS 62 D with a touch of a darker red-purple RHS 62 B.

EXAMPLE 3

35 CULTIVAR 'KJ 2003 0727'

[0061] The new *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 2003 0727' was produced using 1) a *K. blossfeldiana* double-type selection designated 'Leonardo', as the female parent, and is described in pending United States Plant Patent Number PP13,365, and 2) a proprietary single-type selection of *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 1998-469', unpatented. The new *Kalanchoe* cultivar 'KJ 2003 0727' was discovered and selected as a flowering plant within the progeny of the stated cross in a controlled environment in Hinnerup, Denmark.

40 [0062] Asexual reproduction of the new cultivar by vegetative terminal cuttings was first performed in March, 2004, in Hinnerup, Denmark, and has demonstrated that the combination of characteristics as herein disclosed for the new cultivar are firmly fixed and retained through successive generations of asexual reproduction. The new cultivar reproduces true-to-type through asexual reproduction.

45 [0063] The following traits have been repeatedly observed and are determined to be unique characteristics of the new *Kalanchoe* cultivar 'KJ 2003 0727' which in combination distinguish this *Kalanchoe* as a new and distinct cultivar:

- 50
1. a large number of petals per flower resulting in a double-type or multi-petalled trait;
 2. the large size of petals resulting in a large flower;
 3. a unique soft pink color with a touch of yellow; and
 4. a large number of flowers per plant.

55 [0064] The new *Kalanchoe* cultivar 'KJ 2003 0727' has not been observed under all possible environmental conditions. The phenotype of the new cultivar may vary significantly with variations in environment such as temperature, light intensity, and day length without any change in the genotype of the plant. The following observations, measurements and values describe the new *Kalanchoe* cultivar 'KJ 2003 0727' as grown in Hinnerup, Denmark, under conditions which

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closely approximate those generally used in commercial practice.

[0065] Plants of 'KJ 2003 0727' differ from plants of the parental cultivars in the following characteristics:

Trait	New Cultivar 'KJ 2003 0727'	Female Parent 'Leonardo' (patented, PP13,365)	Male Parent 'KJ 1998 469' (unpatented)
Height of cultivar	Is about 27 cm	Is about 30 cm	Is about 33 cm
Flower Type	Double-type	Double-type	Single-type
Flower Diameter	22-25 mm	15-17 mm	20-25 mm
Flower number	300-350	250-300	350-400
Number of Corolla Lobes	Between 30-38 full or partial petals.	Between 18-25 full or partial petals	4 petals
Corolla Coloration	Red-purple. Summer coloration: RHS 61 B and turn to 67 C after some days. Winter coloration: RHS N66 A.	Red-purple. RHS N74 A with one very thin longitudinal line from apex to base (1 mm) RHS 71 B.	Red-purple. RHS 68 B with many fine longitudinal lines RHS 62 D. The border of the corolla is 62 D.
Shape of petal	Broadly elliptic petals. The width of the petal is 7 mm and the length is 9 mm. The shape of	Elliptic petals. The width of the petal is 4 mm and the length is 7 mm. The shape of	Broadly elliptic petals. The width of the petal is 8 mm and the length is 12

Trait	New Cultivar 'KJ 2003 0727'	Female Parent 'Leonardo' (patented, PP13,365)	Male Parent 'KJ 1998 469' (unpatented)
	the apex is cuspidate with entire margin.	the apex is cuspidate with entire margin.	mm. The shape of the apex is cuspidate with entire margin.
Leaf	Ovate leaves with medium petiole. The apex is rounded and the base is rounded.	Ovate leaves with medium petiole. The apex is obtuse and the base is rounded	Elliptic leaves with long petiole. The apex is rounded and the base is obtuse.
Leaf texture	The texture of the leaf is glabrous and shining.	The texture of the leaf is glabrous and shining.	The texture of the leaf is glabrous and shining.

[0066] Of the many commercial cultivars known to the present Inventors, the most similar in comparison to 'KJ 2003.0727' is *Kalanchoe* cultivar 'KJ 2002 0504'. Comparing these two cultivars, besides the petal color being a different pink shade, the main distinction is that plants of 'KJ 2003 0727' have large sized petals resulting in large flowers which have a very harmonic symmetry.

[0067] In the following description, color references are made to the Royal Horticultural Society Colour Chart (RHS), published 2001, except where general colors of ordinary significance are used. Color values were taken under daylight conditions at approximately 12:00 p.m. in a greenhouse in Hinnerup, Denmark. The age of the plant described is 19 weeks (from the time the cutting was planted in growth medium to when the picture was taken).

PARENTAGE:

[0068]

Male or pollen parent: *K. blossfeldiana* x *K. laciniata* interspecific hybrid 'KJ 1998469'.

Female or seed parent: *K. blossfeldiana* cultivar 'Leonardo' (disclosed in United States Plant Patent Number PP13,365).

CLASSIFICATION:

[0069]

5 Botanical: *K. blossfeldiana* x *K. laciniata* interspecific hybrid cultivar 'KJ 2003 0727'
 PROPAGATION: Vegetative terminal cuttings.
 Rooting Habit: The cultivar has numerous, branched, fine and fibrous roots.
 Time to initiate roots: It takes between 1 and 2 weeks to initiate roots.
 Time to produce a rooted cutting: It will take 3 weeks to produce a well rooted cutting. In winter time, it can take on
 10 week more.
 PLANT: If the plants are grown according to the description above, it will perform as described below. Variation from
 this description should be expected over the course of the year, and if the physical growing conditions varies from
 the description.
 Growth habit: This cultivar is upright and uniform. The flowers are formed above the top of the leaf canopy, but the
 15 flowers will also appear between the leaves. The flowers are assembled in numerous compound inflorescences.
 'KJ 2003 0727' is freely flowering with numerous compound cymes.
 Growth rate: Ready for sale after 18 weeks.
 Branching habit and description: Freely branching; typically 8 to 10 lateral branches develop per plant. Pinching
 (removal of the terminal apex) is not mandatory, but will enhance lateral branching. When grown in 10.5 cm pots
 20 the cultivar is normally not pinched.
 Height at flowering: The height of the cultivar is about 27 cm from the bottom of the pot to the top of the plant,
 depending on the growth conditions.
 Spread/Diameter at flowering: The diameter of the cultivar at flowering is from leaf tip to leaf tip about 31 cm.

25 FLOWER DESCRIPTION:

[0070]

30 Flower type and habit: The flower is a double-type with up to 38 petals per flower. The average number of petals
 per flower is 30.
 Natural flowering season: The flowering season is year round, when grown according to description above. When
 planting outside the flowering season will be in the summer (April to October), depending on local climatic conditions.
 Time to flower: The time from start of short day treatment to 1st flower is about 68 days, approximately 1 week
 longer in winter time.
 35 Flowering stem length: The length of the flowering stem is ranging from 11 to 15 cm depending on the growth
 conditions.
 Post production longevity: 'KJ 2003 0727' maintain good leaf and flower substance for at least 6 weeks under interior
 environmental conditions.
 Winter Hardiness/weather tolerance: 'KJ 2003 0727' withstands wind, rain and direct sunlight, and can cope with
 40 temperatures between 40 and 95 degrees F.
 Fragrance: 'KJ 2003 0727' has no fragrance.
 Flower size: The diameter of the flower range from 22 to 25 mm.
 Overall shape: The shape is rose-like shape, defined by at least 5 petals per flower.
 Quantity: 'KJ 2003 0727' produces a large number of flower ranging from 300 to 350 flowers per plant.

45 Petal:

[0071]

50 Quantity: Typically 30-38 petals fused at the base.
 Shape: The shape of petal is broadly elliptic.
 Length: The length is about 9 mm.
 Width: The width is about 7 mm.
 Apex: The shape of the apex is cuspidate.
 55 Margin: The shape of the margin can be described as entire.
 Texture: The texture of the petals is soft, smooth and matte.
 Color when opening: The coloration of the upper surface of 'KJ 2003 0727' changes over the year. During summer
 time the colors are more intense and warm, whereas the winter colors are dustier.

Summer time:

[0072]

- 5 Upper surface: The upper surface of the petal has a deep, warm red-purple color, RHS 61 B, and turn after some days to RHS 67 C.
Lower surface: The lower surface of the petal is red-purple, RHS 65 C with a touch of RHS 167 C.
Winter time:
- 10 Upper surface: The upper surface of the petal is deep, warm red-purple, RHS N66 A.
Lower surface: The lower surface of the petal is red-purple, RHS 65 C with a touch of RHS 167 C.
Color when fully open:
- 15 Upper surface: The upper surface of the petal is red-purple, RHS N66 A.
Lower surface: The lower surface the petal is red-purple, RHS 65 C with a touch of RHS 67 C.

Claims

- 20 1. A Kalanchoe interspecific hybrid plant being a double-type K. laciniata x K. blossfeldiana plant having one or more double-type flowers with at least 35 full or partial petals per flower and wherein the double type characteristic is introgressed from a double-type K. blossfeldiana.
- 25 2. The Kalanchoe interspecific hybrid plant according to claim 1, wherein substantially all the flowers produced by said plant are double-type with at least 35 full or partial petals per flower.
3. The Kalanchoe interspecific hybrid plant according to claim 1, wherein a double-type flower has at least 36, 37, 38, 39 or 40 petals per flower.

Patentansprüche

- 35 1. Eine interspezifische Kalanchoe-Hybridpflanze, die eine Doppeltyp K. laciniata x K. blossfeldiana Pflanze ist, die eine oder mehrere Doppeltyp-Blüten mit mindestens 35 vollen oder partiellen Blütenblättern pro Blüte hat, und wobei die Doppeltyp-Charakteristik introgrediert ist von einem Doppeltyp K. blossfeldiana.
2. Die interspezifische Kalanchoe-Hybridpflanze gemäß Anspruch 1, wobei im Wesentlichen alle Blüten, die durch die Pflanze hergestellt werden, vom Doppeltyp sind mit mindestens 35 vollen oder partiellen Blütenblättern pro Blüte.
- 40 3. Die interspezifische Kalanchoe-Hybridpflanze gemäß Anspruch 1, wobei eine Doppeltyp-Blüte mindestens 36, 37, 38, 39 oder 40 Blütenblätter pro Blüte aufweist.

Revendications

- 45 1. Une plante hybride interspécifique de Kalanchoe qui est une plante de type double K. laciniata x K. blossfeldiana, comportant une ou plusieurs fleurs de type double avec au moins 35 pétales complets ou partiels par fleur et dans laquelle la caractéristique de type double est introgressée à partir de K. blossfeldiana à type double.
- 50 2. La plante hybride interspécifique de Kalanchoe selon la revendication 1, dans laquelle sensiblement toutes les fleurs produites par ladite plante sont de type double avec au moins 35 pétales complets ou partiels par fleur.
3. La plante hybride interspécifique de Kalanchoe selon la revendication 1, dans laquelle une fleur de type double comporte au moins 36, 37, 38, 39 ou 40 pétales par fleur.

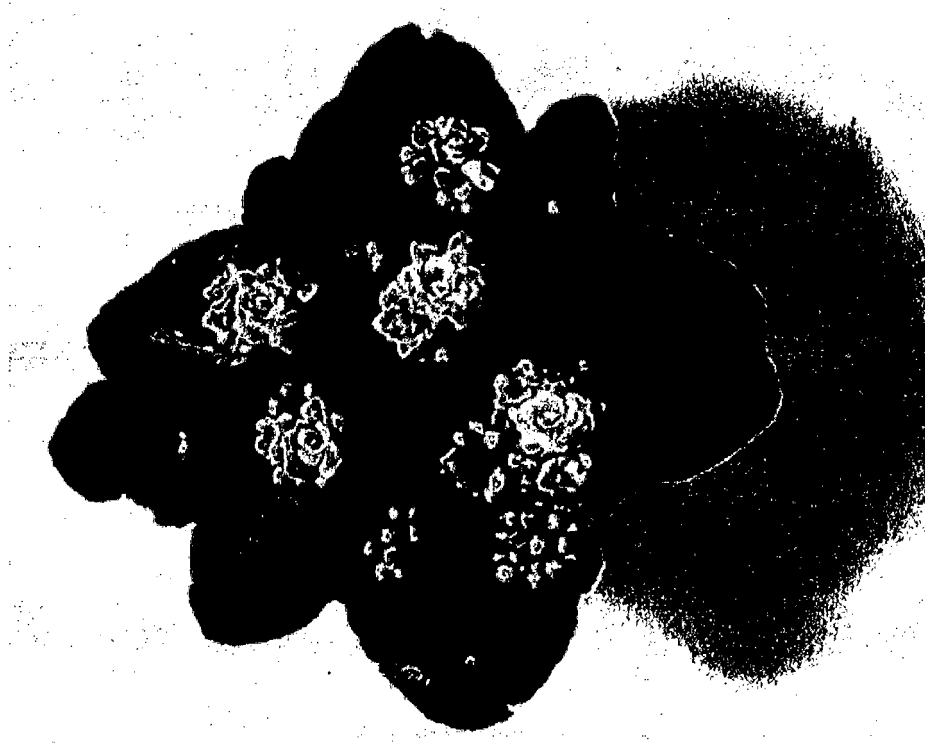


Fig. 1

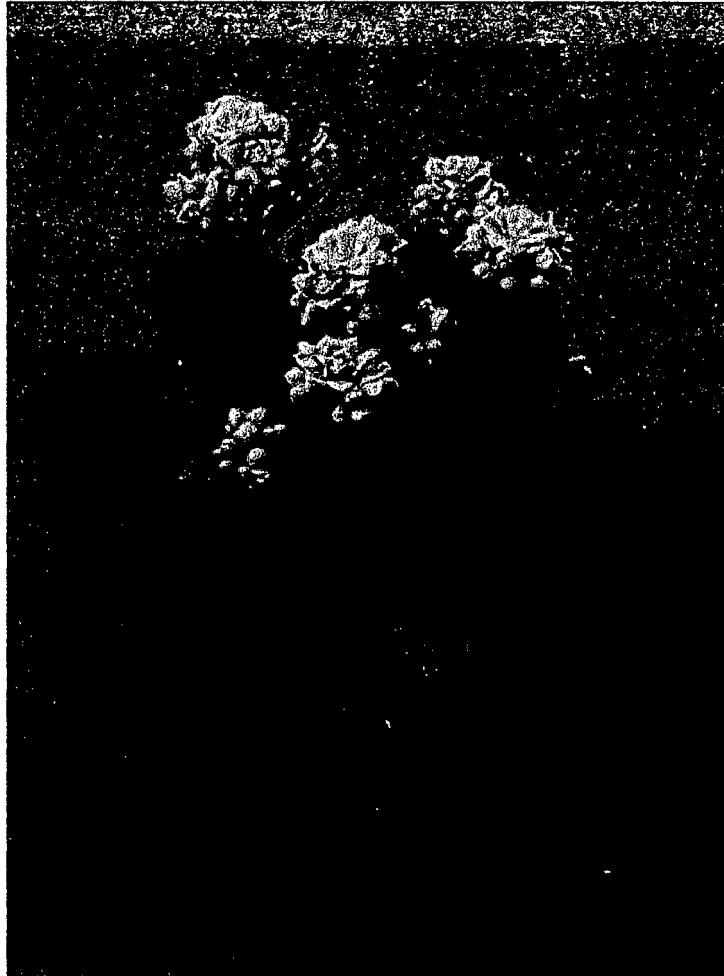


Fig. 2

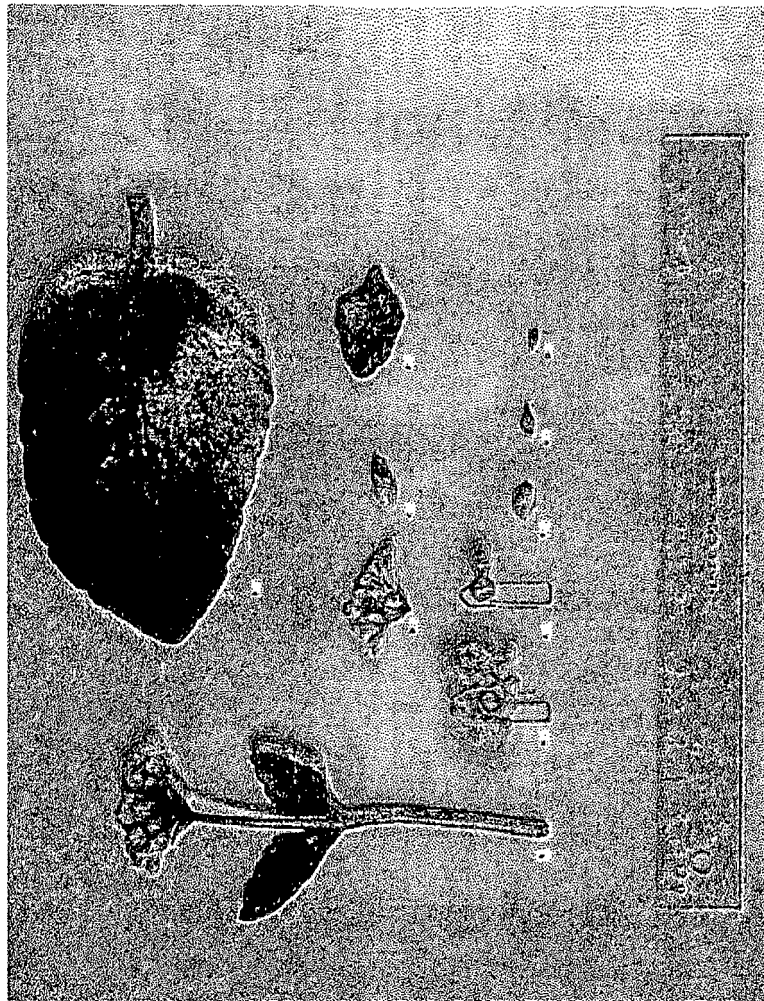


Fig. 3

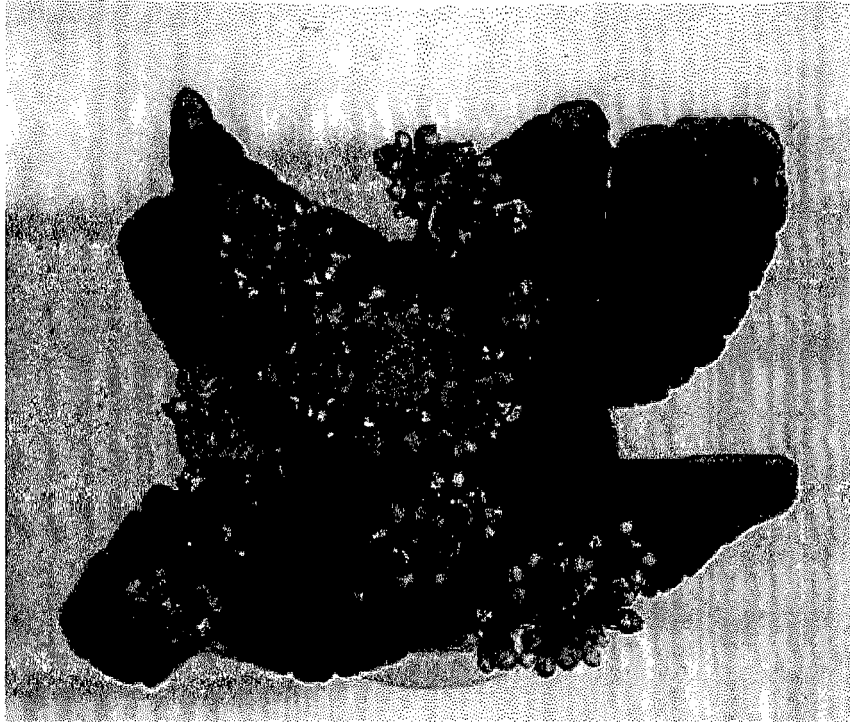


Fig. 4



Fig. 5

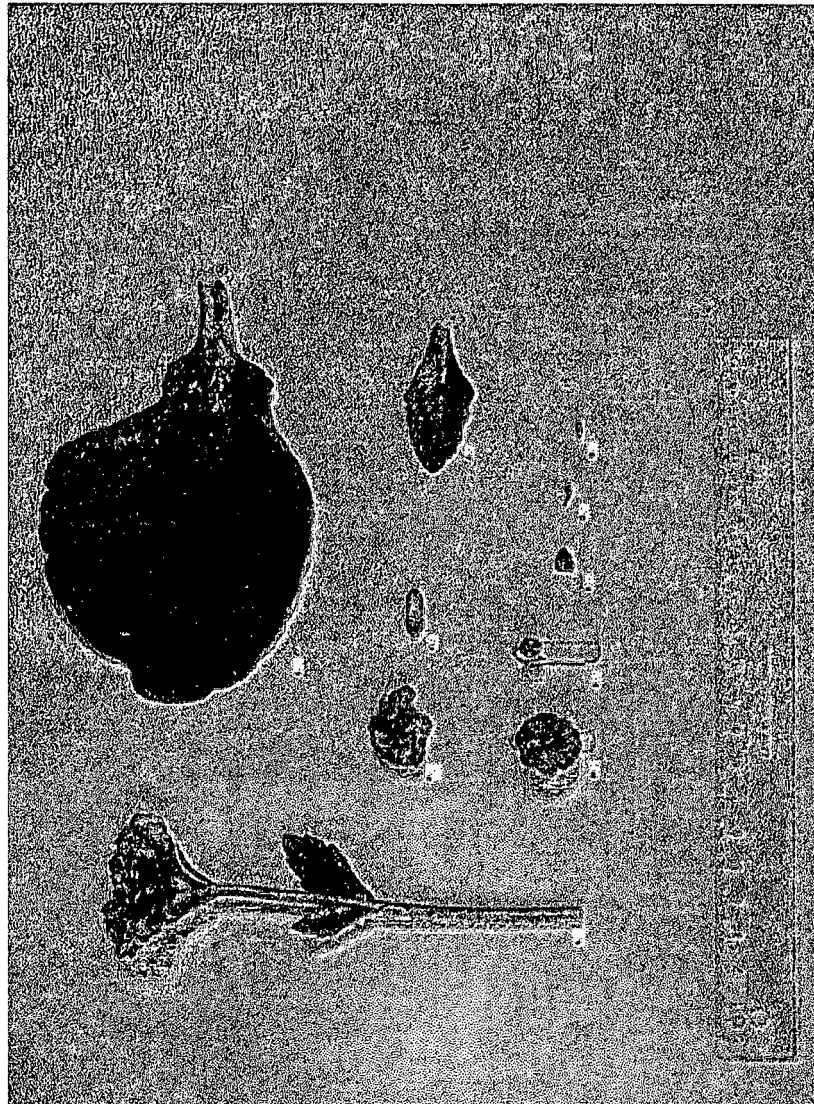


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 12299 A [0023]
- US PP13365 A [0068]

Non-patent literature cited in the description

- **J.T. BALDWIN.** *Amer. J. Bot.*, 1938, vol. 25, 572-579 [0003]
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